

Regarding claim 1, it is respectfully submitted that present claim 1 is patentable over the Funahata patent, and that claim 1 defines an invention that is neither disclosed nor suggested by the cited reference. It is further respectfully submitted that present claim 1 has been amended merely to more particularly point out and clarify the subject matter regarded as the invention.

The Funahata patent is primarily directed to a device having a glass substrate (1), a black matrix or dispersed polymer layer (2), a reflective layer (3), non-photosensitive color filters (5a, 5b, 5c), transparent electrodes (6, 11), a liquid crystal layer (14), a spacer (13), an alignment layer (12), another glass substrate (10), a first phase plate (20), a second phase plate (21), and a polarizer (22). (col. 3, lines 11-37); (Fig. 2). The device is intended to provide preferable reflecting characteristics, reduce the complexities associated with the manufacturing process and the corresponding costs. (col. 2, lines 15-20).

It is respectfully submitted that notwithstanding the foregoing, the Funahata patent fails to disclose or suggest "a color filter layer divided into at least two portions, each portion in correspondence with the sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filters or transmits light components of predetermined wavelengths" (emphasis added). Also, it is noted that the structure taught by the Funahata patent (col. 3, lines 11-37); (Fig. 2), does not, contrary to that which was suggested by the action, disclose or suggest that

a "transparent electrode layer" be "located on and in contact with a side of one main surface of the liquid crystal layer on which extraneous light is incident" (emphasis added). Hence, the comparison of transparent electrode (11), liquid crystal layer (14), and reflective/pixel electrode layer (3), is misplaced at least because neither layer (11) nor layer (3), as disclosed in the Funahata patent, contact liquid crystal layer (14). Accordingly, it is respectfully requested that because the cited reference fails to disclose or suggest all the features defined by claim 1, reconsideration be given to the rejection, the rejection be withdrawn, and allowance of claim 1 be granted.

Regarding claims 2 through 5, which depend either directly or indirectly from claim 1, it is respectfully submitted that they are each patentable at least for the reasons discussed above with respect to claim 1. Accordingly, reconsideration and withdrawal of the rejection, and allowance of claims 2 through 5, are respectfully requested.

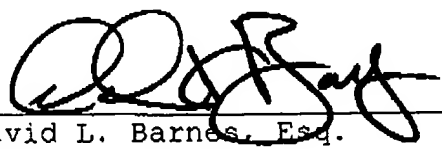
Regarding claims 6 and 7, claim 6, similar to claim 1, has at least two portions, each portion in correspondence with sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filtering or transmitting light components of predetermined wavelengths. Accordingly, it is respectfully submitted that claim 6 is patentable at least for the reasons discussed above with respect to claim 1. Claim 7, which depends from claim 6, likewise is patentable for at least the same reasons.

Regarding claims 8 through 10, claim 8, similar to claim 1, has at least two portions on a support member, each portion in correspondence with sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filtering or transmitting light components of predetermined wavelengths. Thus, it is respectfully submitted that claim 8 is patentable at least for the reasons stated above with respect to claim 1. Claims 9 through 10, which depend from claim 8 are likewise patentable for at least the same reasons.

Regarding newly added claims 11 through 15, it is respectfully submitted that these claims have been added merely to more particularly point out and clarify the subject matter regarded as the invention. It is also respectfully submitted that each of these claims are fully supported by the original disclosure and contain no new matter.

In sum, it is respectfully submitted that the present pending claims are clearly patentable over each of the cited references and/or any proper combination thereof. Thus, this application is in condition for allowance. Accordingly, reconsideration and withdrawal of all rejections of the claims are respectfully requested.

Dated: February 4, 2003


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Regarding claims 8 through 10, claim 8, similar to claim 1, has at least two portions on a support member, each portion in correspondence with sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filtering or transmitting light components of predetermined wavelengths. Thus, it is respectfully submitted that claim 8 is patentable at least for the reasons stated above with respect to claim 1. Claims 9 through 10, which depend from claim 8 are likewise patentable for at least the same reasons.

Regarding newly added claims 11 through 15, it is respectfully submitted that these claims have been added merely to more particularly point out and clarify the subject matter regarded as the invention. It is also respectfully submitted that each of these claims are fully supported by the original disclosure and contain no new matter.

In sum, it is respectfully submitted that the present pending claims are clearly patentable over each of the cited references and/or any proper combination thereof. Thus, this application is in condition for allowance. Accordingly, reconsideration and withdrawal of all rejections of the claims are respectfully requested.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE DRAWINGS

Please replace Fig. 5 of the drawings filed January 16, 2001 with the revised Fig. 5 enclosed herewith.

IN THE SPECIFICATION

Please amend the specification as follows:

Page 1; please replace lines 1 through 3 with the following:

-- BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a reflection type color liquid crystal display device for displaying a color image using extraneous light, and to a light scattering film capable of being used in the liquid crystal display device.

2. Description of the Related Art --

Page 1, please replace lines 22 through 24 with the following:

-- BRIEF SUMMARY OF THE INVENTION

In view of the above, a main object of the present invention is to provide a liquid crystal display device capable

of increasing the luminance of display without decreasing the color purity. --

Page 3, following line 16, please insert the following:

-- **BRIEF DESCRIPTION OF THE DRAWINGS**

The invention will be described in detail hereinafter with reference to the illustrative embodiments that are shown in the Figures; therein:

Fig. 1 is a sectional view of the structure of the display panel of the color liquid crystal display device representing an embodiment of the invention.

Fig. 2 is a sectional view of the structure of the display panel of the liquid crystal display device representing another embodiment of the invention.

Fig. 3 is a sectional view of the structure of the display panel of liquid crystal display device incorporating a light scattering film according to an embodiment of the invention.

Fig. 4 is a sectional view of the structure of the display panel of the liquid crystal display device incorporating a scattering film according to another embodiment of the invention.

Fig. 5 is a process flowchart showing the steps of fabricating a light scattering film in according with the invention. --

Page 3, please replace lines 17 through 18 with the following:

-- DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 shows a sectional view of the structure of a display panel of a color liquid crystal display device according to one embodiment of the invention. --

Page 8, please delete lines 4 through 15:

[[Fig. 1] is a sectional view of the structure of the display panel of the color liquid crystal display device representing an embodiment of the invention.

[Fig. 2] is a sectional view of the structure of the display panel of the liquid crystal display device representing another embodiment of the invention.

[Fig. 3] is a sectional view of the structure of the display panel of liquid crystal display device incorporating a light scattering film according to an embodiment of the invention.

[Fig. 4] is a sectional view of the structure of the display panel of the liquid crystal display device incorporating a scattering film according to another embodiment of the invention.

[Fig. 5] is a process flowchart showing the steps of fabricating a light scattering film in according with the

invention.]

IN THE ABSTRACT

Page 14, please replace lines 1 through 5 with the following:

-- ABSTRACT

A reflective color liquid crystal display device capable of increasing the luminance of display without decreasing color purity. The display device displays a color image formed based on unit pixels each of which has sub-pixels corresponding to primary colors by using extraneous light, which has a liquid crystal layer varying a state of light transmitted therethrough, a reflection layer reflecting light which is incident thereon, a transparent electrode layer and a pixel electrode layer for applying electric field to the liquid crystal layer for each of the sub-pixels in accordance with an image to be displayed, a color filter layer having portions that perform coloring of the primary colors for the light to be transmitted (or the light having transmitted) through the liquid crystal layer in correspondence with the sub-pixels. The unit pixel also has a sub-pixel for increasing luminance, the additional portion transmitting light components of predetermined wavelengths from the light to be transmitted (or the light having transmitted) through the liquid crystal layer.

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IN THE CLAIMS

Please amend claims 1 through 10 and add claims 11 to 15 as

follows:

1. (Amended) A reflection type color liquid crystal display device for displaying a color image formed based on unit pixels each comprising sub-pixels corresponding to primary colors by using extraneous light, which comprises:

a liquid crystal layer varying a state of light transmitted therethrough in accordance with electric field applied thereacross;

a reflection layer reflecting light which is incident thereon via the liquid crystal layer;

a transparent electrode layer and a pixel electrode layer for applying electric field to the liquid crystal layer for each of the sub-pixels in accordance with an image to be displayed, the transparent electrode layer located on and in contact with a side of one main surface of the liquid crystal layer on which extraneous light is incident, the pixel electrode layer located on a side of another surface of the liquid crystal layer on which light reflected from the reflection layer is incident; and

a color filter layer [comprising portions which perform coloring of the primary colors for the light to be transmitted (or the light having transmitted) through the liquid crystal layer in correspondence with the sub-pixels, CHARACTERIZED in that:

the unit pixel further comprises a sub-pixel for increasing luminance; and

the color filter layer further comprising additional portions associated with the sub-pixels for increasing luminance, the additional portion transmitting light components of predetermined wave-lengths from the light to be transmitted (or the light having transmitted) through the liquid crystal layer.] divided into at least two portions, each portion in correspondence with the sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filters or transmits light components of predetermined wavelengths.

2. (Amended) [A] The device [as claimed in Claim 1, CHARACTERIZED in that] of claim 1, wherein the color filter layer is located on a side of the one main surface on which extraneous light is incident.

3. (Amended) [A] The device [as claimed in Claim 1, CHARACTERIZED in that] of claim 1, wherein the color filter layer is located on a side of another surface of the liquid crystal layer on which light reflected from the reflection layer is incident.

4. (Amended) [A] The device [as claimed in Claim 1, 2 or 3, CHARACTERIZED in that] of claim 1, wherein light components of predetermined [wave-lengths] wavelengths are white light.

5. (Amended) [A] The device [as claimed in Claims 1 to 4, CHARACTERIZED in that] of claim 1, wherein the reflection layer and pixel electrode layer are in the same layer and in common.

6. (Amended) A light scattering film capable of being

used in a liquid crystal device for displaying a color image on the basis of unit pixels comprising sub-pixels corresponding to primary colors, wherein the film comprises:

at least two portions, each portion in correspondence with the sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filtering or transmitting light components of predetermined wavelengths

[portions performing coloring of the primary colors for light transmitted thereof for each of the sub-pixels;

additional portions associated with sub-pixels for increasing luminance, the additional portions transmitting light components of predetermined wavelengths from light incident thereon]; and

a light scattering portion being extended over the whole of the film, and in that the additional portions and the light scattering portion are integrally formed from the same material.

7. (Amended) [A] The device [as claimed in Claim 6, CHARACTERIZED in that] of claim 6, wherein the light components of predetermined [wave-lengths] wavelengths are white light.

8. (Amended) A method of manufacturing a light scattering film capable of being used in a liquid crystal display device for displaying a color image on the basis of unit pixels comprising sub-pixels corresponding to primary colors, wherein the method comprises:

a first step of forming [coloring portions on a support member while forming spaces for additional portions which are associated with sub-pixels for increasing luminance and which transmits light components of predetermined wavelengths from light incident thereon, the coloring portions performing coloring of the primary colors for light transmitted thereof for each of the sub-pixels] at least two portions on a support member, each portion in correspondence with the sub-pixels and having an appropriate optical filter part for coloring (or transmitting all light components), wherein one portion performs coloring for the primary colors and another portion filtering or transmitting light components of predetermined wavelengths; and

a succeeding step of filling the space and forming a light scattering portion extended over the whole of the film, with the same material which can be characteristic of transmitting the light components of predetermined wave-lengths.

9. (Amended) [A] The device [as claimed in Claim 8, CHARACTERIZED in that] of claim 8, wherein the support member is a transparent substrate located on a front side of a display screen in the liquid crystal display device.

10. (Amended) [A] The device [as claimed in Claim 8, CHARACTERIZED in that] of claim 8, wherein the support member is a transparent substrate which is located on a rear side of a display screen in the liquid crystal display device and on which a layer of driving element array and a reflection layer are stacked, and in that the coloring portions and the additional portions are formed on the reflection layer.